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#16/Appeal Brief
T. Young
10.22-03

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Kelly Jenkins

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Carl J. Dister

Serial No: 09/164,206

Filing Date: September 30, 1998

Examiner: Craig Miller

Art Unit: 2857

Title: PACKAGING FOR DYNAMOELECTRIC MACHINE DIAGNOSTIC SYSTEM

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APPEAL BRIEF

Dear Sir:

Applicant's representative submits this brief in triplicate in connection with an appeal for the above-identified application. Please charge the requisite fee associated with this brief to Deposit Account No. 50-1063 (Reference Number ALBRP125US).

I. Real Party in Interest (37 C.F.R. § 1.192(c)(1))

The real party in interest in the present appeal is RELIANCE ELECTRIC TECHNOLOGIES, LLP, the assignee of the present application.

II. Related Appeals and Interferences (37 C.F.R. § 1.192(c)(2))

Appellant, appellant's legal representatives, and/or the assignee of the present application are unaware of any appeals or interferences which will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. § 1.192(c)(3))

Claims 1-25 are pending in the application. The rejection of claims 1-25 is appealed.

IV. Status of Amendments (37 C.F.R. § 1.192(c)(4))

No amendments have been filed subsequent to final rejection.

V. Summary of Invention (37 C.F.R. § 1.192(c)(5))

Applicant's claimed invention relates to a machine diagnostic system that comprises; 1) *a module*, and 2) *a package*, which enable ***accurate and reliable*** diagnostics of a dynamoelectric machine as explained below;

1. The Module

The module accumulates data from the dynamoelectric machine, and is mounted thereupon such that data can be reliably collected from a ***same precise location*** of the dynamoelectric machine. Typically, data needs to be collected and compared at different times from the dynamoelectric machine to monitor its health. At the same time, the creditableness of such trend analysis rests upon the ability to reproduce the ***precise*** location of the data sensed. The subject invention, as recited in independent claim 1, provides for ***mounting*** the module such that data can be reliably collected from a ***same precise location***, whereby accurate comparisons can be made. (Applicant's representative has defined the term "***mounting***" for the purpose of the subject claims at p. 11, IV, 22-28 continued into p. 12, I, 1-5 of the subject specification.) Such mounting of the module on the dynamoelectric machine is one advantage of the claimed invention over conventional machine diagnostic systems, such as that described in the cited art.

2. ***The Package***

The package itself comprises; 1) a container, and 2) a heat dissipation device. The container contains the module, and the heat dissipation device facilitates thermal isolation of the container (and its contained module), and ***regulates*** a transfer of heat generated by the dynamoelectric machine to the container. (P. 7, ll. 4-12). Such heat regulation is facilitated *via* the heat dissipation device's first and second set of fins. The heat dissipation device is positioned between the container and the dynamoelectric machine to be diagnosed.

The first set of fins contact the container from the tip side of each fin. (Reference numerals 101-119 in Fig. 7). In addition, the base side of such fins contacts the dynamoelectric machine once the package is mounted thereupon. To ***regulate*** heat transfer, (*e.g.* thermally isolate the container from the dynamoelectric machine), low conduction properties is preferred for the first set of fins to maximize temperature variations from the fin base, (which contact the dynamoelectric machine) to the fin tip, (which contacts the container), *e.g.*, unlike conventional fins the temperature differential between the tip of the fin and the base of the fin is preferably as high as possible. (p.16, last paragraph continued into p. 17.) Such an arrangement facilitates thermal isolation of the module, and regulates dissipation of heat generated by the dynamoelectric machine to be diagnosed.

The second set of fins does not contact the dynamoelectric machine. (Reference numerals 121-125 in Fig. 7.) Such fins are generally ribbon-shaped or strip-shaped and function as traditional fins in that they merely transfer heat from the container to the surrounding air (p. 18, ll. 1-19).

It is respectfully submitted that the cited art fail to teach or suggest these claimed features, as will be discussed in greater detail below.

VI. Statement of the Issues (37 C.F.R. § 1.192(c)(6))

Whether claims 1-25 are properly rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al.* (US Patent 6,260,004) or Wang *et al.* (US Patent 5,566,092), either in view of Emori *et al.* (US Patent 5,940,272) or Lakin *et al.* (US Patent 4,840,222).

VII. Grouping of Claims (37 C.F.R. § 1.192(c)(7))

For the purposes of this appeal only, the claims are grouped as follows:

Claims 1, 25 stand or fall together, claims 2-22 stand or fall together, and claims 23, 24 stand or fall together.

VIII. Argument (37 C.F.R. § 1.192(c)(8))

Rejection of Claims 1-25 Under 35 U.S.C. §103(a)

Claims 1-25 stand rejected under 35 U.S.C. §103(a) as being obvious over Hays *et al.* or Wang *et al.*, either in view of Emori *et al.* or Lakin *et al.*

A reversal of the rejection is respectfully requested for at least the following reasons.

i. The Office Action rejects the subject claims even though it concedes that relied upon references fail to teach or suggest the inventive feature of positioning the module on the dynamoelectric machine such that data can be collected from a same precise location.

As conceded by the Examiner, neither Wang *et al.* nor Hays *et al.* teach or suggest mounting monitoring electronics on industrial equipment - much less in the claimed manner. The Office Action dated 04/02/03 at page 1, paragraph 1 states:

> "Neither Wang *et al.* nor Hays *et al.* specify that the monitoring electronics should be mounted upon the industrial equipment".

Independent claim 1 of the subject invention recites "a machine diagnostic module [...] ***mounted*** to an ***outer mounting surface*** of the machine[...]." Mounting of the diagnostic module on the dynamoelectric machine in the manner of the claimed invention, (which is defined by the subject specification at page 11, last paragraph - continued into page 12 first paragraph), provides for advantages over conventional machine diagnostic systems, such as the cited art. In particular, the diagnostic module is permanently fixed in a manner such that data can be reliably collected from a ***same precise location***, whereby accurate comparisons can be made.

Despite the lack of teaching of such inventive feature in the cited references, let alone even motivation to modify the references in the manner suggested, (*e.g.* Hays *et al.* discloses a ***portable*** diagnostic device, and teaches away from a mounting of the module to the dynamoelectric machine), the Examiner rejects the subject claims.

In general, the rationale proffered to combine the references and/or modify the references is

to achieve benefits identified in applicant's specification, which overcome problems associated with conventional systems/methods. Applicant's representative respectfully submits that this is an unacceptable and improper basis for a rejection under 35 U.S.C. §103. In essence, the Examiner is basing the rejection on the assertion that it would have been obvious to do something not suggested in the art because so doing would provide advantages stated in applicant's specification. This type of rationale has been condemned by the CAFC. *See for example, Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987).

For at least the above reasons, rejection of independent claim 1, and claims 2-22, 25 dependent therefrom is improper, and a reversal of this rejection is respectfully requested.

ii. The cited references, alone and in combination, fail to teach or suggest a heat dissipation arrangement that regulates heat flow from one component of a system (the dynamoelectric motor) to a second component of the system (the container.)

Neither Hays *et al.* or Wang *et al.*, alone or in combination with Emori *et al.* or Lakin *et al.* teach or suggest a heat dissipation device, positioned to regulate heat flow from one component of a system (here from the dynamoelectric machine) to a second component of the system (here to the container). Rather, Emori *et al.* is directed to a heat sink apparatus that dissipates heat from a plurality of components to the surrounding medium (col. 1, ll. 56-63) – not conducting heat flow from one component to another component, thereby minimizing heat transfer to the container (and its module), as recited in independent claims 1, 23, 24 of the present invention. Similarly, Lakin *et al.* is directed to an annular heat sink adapted to be compressed and inserted within the cylindrical sleeve of a motor to dissipate heat generated in a motor into the surrounding medium– not reducing heat flow from one component to another component as in the claimed invention. Accordingly, both Emori *et al.* and Lakin *et al.* are directed to heat sink apparatuses that prevent excessive operating temperatures in heat-generating electronic components. In contrast, the structure of claim 1 is a heat dissipation device that reduces heat flow from the dynamoelectric machine to the container and the module. Similar limitations are recited in independent claims 23 and 24.

Put differently, the heat sink apparatuses of both Emori *et al.* and Lakin *et al.* dissipate heat away from a plurality of electronic components, and into the surrounding environment. Such heat sinks, if incorporated as part of the combination as suggested by the Office Action, can in fact direct heat from the dynamoelectric machine ***into*** the module, as opposed to ***away from*** the module, since

the package is part of the environment surrounding the dynamoelectric machine as it is mounted thereupon. Thus, such a modification destroys the purpose or function of the subject invention, and one of ordinary skill in the art would not have a reasonable expectation of success to apply such modifications. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Moreover, there is no motivation to combine the references in the manner suggested. The Office Action asserts that it is ***well known***; to make integral that which was separate, to monitor operations of machines, to include the mounting of the electronics within an arrangement of the prior art, and the like. Such reasoning has been consistently criticized by the Federal Courts;

> ...'***virtually all [inventions] are combinations of old elements.***' Therefore an examiner may often find every element of a claimed invention in the prior art. ***If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue.*** Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. ***Such an approach would be 'an illogical and inappropriate process by which to determine patentability.'*** *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998) (*citations omitted*).

For at least the above reasons, rejection of independent claim 1 (and claims 2-22, 25 dependent therefrom), independent claim 23 and independent claim 24 are improper, and a reversal of this rejection is respectfully requested.

iii. The cited references, alone and in combination, fail to teach or suggest a plurality of fins that facilitate thermal isolation of the module, and minimize heat transfer thereto.

Neither Hays *et al.* or Wang *et al.*, alone or in combination with Emori *et al.* or Lakin *et al.* teach or suggest a plurality of fins with a tip and base arrangement that; 1) dissipate heat, and 2) provide thermal isolation between various components (here provide for thermal isolation of the container from heat generated by the dynamoelectric machine) of a system.

Rather, the fins of Emori *et al.* dissipate heat from electrical components into a medium surrounding the fins. Such medium is air or a liquid that border the fins. Accordingly, for such fins ***high*** conduction properties is desirable to facilitate heat distribution throughout the fin surface, *e.g.*

minimize temperature difference between an edge and tip of the Emori *et al.* fin – not ***low*** conduction properties to ***maximize*** a temperature difference between the tip and the base of the fins and facilitate thermal isolation of the module form heat generated by the dynamoelectric machine as recited in dependent claims 2-22 and independent claims 23, 24.

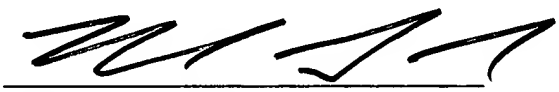
Thus, modifying Emori *et al.* to meet the elements of such claims of the present invention, obliterates the purpose and/or function of this reference. Accordingly, one of ordinary skill in the art would lack requisite motivation to make the purported combination in the Office Action, and a reversal of this rejection is respectfully requested.

For at least the above reasons rejection of dependent claims 2-22 and independent claims 23, 24 is improper, and a reversal of this is respectfully requested.

IX. Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-25 be reversed.

Respectfully submitted,
AMIN & TUROCY, LLP



Himanshu S. Amin
Reg. No. 40,894

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone: (216) 696-8730
Facsimile: (216) 696-8731

X. Appendix of Claims (37 C.F.R. § 1.192(c)(9))

1. In combination, a dynamoelectric machine and a machine diagnostic system for on-line diagnosis of the machine;

the machine diagnostic system comprising a machine diagnostic module which collects data relating to operation of the machine and a package which is mounted to an outer mounting surface of the machine; and

the package comprising a container which contains the machine diagnostic module and a heat dissipation device, positioned between the container and the outer mounting surface of the machine, which dissipates heat generated by the machine into surrounding air thereby minimizing heat transfer to the container.

2. The combination set forth in claim 1, wherein the heat dissipation device includes a first set of fins which transfer the heat by convection into the surrounding air.

3. The combination set forth in claim 2, wherein each of the fins in the first set of fins has a base which engages the outer mounting surface of the machine and a tip which engages the container whereby heat is conducted through the base towards the tip and is transferred by convection into the surrounding air.

4. The combination set forth in claim 3, wherein the heat dissipation device includes a front edge and a rear edge and wherein the first set of fins include at least some fins which extend between the front edge and the rear edge.

5. The combination set forth in claim 4, wherein at least some of the fins in the first set of fins extend only partially between the front edge and the rear edge.

6. The combination set forth in claim 4 wherein at least some of the fins in the first set of fins extend in a generally straight path.

7. The combination set forth in claim 4, wherein at least one of the fins in the first set of

fins extends in a curved path.

8. The combination set forth in claim 4, wherein at least some of the fins in the first set of fins are of different widths.

9. The combination set forth in claim 2, wherein the first set of fins are attached to the container.

10. The combination set forth in claim 9, wherein the fins are integral with the container.

11. The combination set forth in claim 10, wherein the fins are formed in one piece with the container.

12. The combination set forth in claim 11, wherein the container and the heat dissipation device are made of at least one of: cast iron, dicast aluminum, extruded aluminum, machined aluminum, and thermally conductive plastic.

13. The combination set forth in claim 2, wherein said container is formed by a series of walls and the fins project outwardly from one of the walls.

14. The combination set forth in claim 13, wherein the fins in the first set of fins project perpendicularly from the one of the series of walls.

15. The combination set forth in claim 14, wherein the series of walls include a bottom wall and set of side walls extending upwardly from the side walls to form a box-like structure and wherein the first set of fins extend perpendicularly downward from the bottom wall.

16. The combination set forth in claim 15, wherein the machine mounting surface is flat and wherein the tip-to-base dimension of each of the fins in the first set of fins is substantially the same.

17. The combination set forth in claim 15, wherein the machine mounting surface is curved and wherein the tip-to-base dimension of the first set of fins varies to form a contour corresponding to the curved machine mounting surface.

18. The combination set forth in claim 2, wherein the machine is an electric motor including a rotor.

19. The combination set forth in claim 2, wherein the machine comprises a fan generating an exhaust airflow and wherein the exhaust airflow is directed towards the first set of fins so that the exhaust air may travel between at least some of the fins thereby continuously conveying the surrounding air away from the container.

20. The combination set forth in claim 19, wherein the package further comprises a second set of fins having their bases attached to the container and their tips positioned in the passageway through which the airflow passes.

21. The combination set forth in claim 19, wherein the machine further comprises a shroud which directs the airflow towards the heat dissipation device.

22. The combination set forth in claim 21, wherein the first set of fins define a plurality of regions and wherein the shroud includes a baffle which divides the airflow into a plurality of component airflow and which directs the component airflow towards the respective regions defined by the first set of fins.

23. A package for a diagnostic module of a dynamoelectric machine comprising:

a container to contain the diagnostic module; and a heat dissipation device which includes a first set of fins, at least one of the fins having a base which engages an outer mounting surface of the machine and a tip which engages the container whereby heat is conducted through the base towards the tip and is transferred by convection into the surrounding air.

24. A method for regulating temperature of a diagnostic module of a dynamoelectric machine, comprising the steps of:

containing the diagnostic module within a container; and

employing a plurality of fins to facilitate dissipating heat generated by the machine into surrounding air to minimize heat transfer to the diagnostic module, wherein at least one of the fins has a base which engages the outer mounting surface of the machine and a tip which engages the container whereby heat is conducted through the base towards the tip and is transferred by convection into the surrounding air.

25. The combination set forth in claim 1 further comprising:

a network backbone connected to the machine diagnostic module; and

a host computer connected to the network backbone able to receive diagnostic data provided from the machine diagnostic module and to allow on-line diagnosis of the machine.